SCHOOL OF STUDIES IN PHYSICS & ASTROPHYSICS

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No. /Phy. Dated: 06/01/2012

Dear Sir,

Please quote (sealed) for the following detailed specification:

Specification for X-ray Diffractometer

X ray powder Diffractometer	01	A x-ray diffractometer is required for regular characterization of powder samples. The Diffractometer design should be such that it must be future upgradeable for attachments for doing x-ray reflectivity and grazing incident diffraction measurements. Detail specification of minimally required various basic components is as follows. **X-Ray Generator:** A fixed tube type variable power x-ray source (Cu-Target) with maximum output power of 3 KW. The source should be capable of a line focus of 10mm x lmm so that it can deliver an effective line source of l0mm x 0.lmm at 6º take-off. The diffractometer will be mounted on the line source only. A source capable of a line focus of l0mm x 0.5mm so that it can deliver an effective line source of 10mm x 50 micron at 6º take-off will be preferable. **Goniometer:** A vertical scanning 2-circle goniometer (i.e goniometers with horizonta axes of rotation and horizontal sample mounting). The two circles must b independently controllable through built in software so that wheneve required one can do theta- theta scan, & theta s – theta d linked: theta - 2 theta individual. Angular resolution for theta- theta circles should be +/- 0.0001 º (theta) and 0.0002 º (2 theta) . The error in angle measuremen accuracy should be +/- 0.0002 º or lower. The error in reproducibility of th angle measured between two consecutive runs, +/- 0.0002 º or lower. Wit necessary goniometer Datum facility before the first run after every powe ON, continuous and step scan facilities with selectable step size and sca speeds. All necessary kits (50 micron divergence slit, proper Al-absorber etc.) and manual for theta and theta circle alignment. All necessary manual for the diffractometer operation and maintenance including electronics. **X-Ray Optics**: Manually replaceable sets of divergence and scatter (0.5 º , l º 2 º and 0.05mm) and receiving (0.05 º ,1 º, 2 º w.r.t theta axis) slits. Incident beam and diffracted beam solar-slits. Counter Monocromoter for qualitative analysis. Glass sample holders. **Detector system:** A (NaI) type detector system with all necessary controls, hardware's, and software's. software alignable HV, Baseline and Window parameters settings for detector Datum, necessarily required before first scan-start after every power ON. **Control Hardwares & Softwares:** Complete with all necessary control and data acquisition electronic hardware's and software's for theta- theta scan, & theta s – theta d linked: theta - 2 theta individual, Intensity measurements etc. ASCII data out-put. The software should be compatible with available third-party XRD data base and search software's. **Power Requirement**: The power input of the machine should be compatible with the single phase, 50Hz, 220-230 V AC power supply. **Optional Items:** (a) All necessary attachments for doing X-ray reflectivity and Grazing incidents XRD of thin film samples. The Thin film attachment should comprise of Optical system of parallel beam method, Thin-film rotational sample stage, Monochromator for parallel beam, Pump for absorbing sample. (b) A water chiller with chilling power suitable for the heat load of above

		XRD generator. **Protection:** The system should be hosed in a high safety standard radiation enclosure. **Computer:** Latest version with USB port, 19" flat SVGA monitor, Operating System, printer & UPS **Spares:** 5 years essential spares should be provided. The detailed list of spares should be provided **Manual:** One set of operating manual and service manual (in English) should be provided with the equipment. **Training:** Necessary Training should be provided to one or two officers at the manufacturing facilities and application laboratory. Prices should be quoted separately. **Warranty:** Minimum two years from the date of installation from the date of the satisfactory installation **Users List:** Number of installations in India of the quoted model with names and addresses of the institutes/ Laboratories should be provided. **System Performance Guarantee:** Peak position accuracy of theta/2Theta angle of at least +/- 0.01 º must be demonstrated at site against NIST standard/Silicon Powder supplied by manufacturer along with equipment, without which installation will not be considered as complete. XRD Manufacturer must attach document along with their offer in support of fulfilling this clause of the technical specification. Factory Test Certificates & with respect to various parameters like goniometer angular reproducibility; minimum step size etc. should be enclosed along with the XIJD system **The written undertaking** regarding availability of spares including X-ray tube and warranty and maintenance must be provided.

Yours sincerely,

Head, SoS in Physics & Astrophysics

Note:

1. Please indicate whether you are the manufacturer sole distributor / authorised dealer/dealer/supplier of the items for the region. **Enclose Certificate** with **price list**.
2. Please indicate whether the prices are inclusive of freight, insurance, taxes etc. or not.
3. We are entitled to issue concessional sales tax from meant for educational institutes. Rate of sales tax to charged may be indicated. If it is higher than the concessional rate. Reason for charging this may please indicated.
4. Terms of payment may also be indicated.
5. Any special remarks.
6. Quotation submitted within 30 days.